UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,549	06/23/2003	Kenneth L. Levy	P0837	2418

23735 7590 09/29/2011

DIGIMARC CORPORATION
9405 SW GEMINI DRIVE
BEAVERTON, OR 97008

EXAMINER	
NUNEZ, JORDANY	
ART UNIT	PAPER NUMBER
2171	
MAIL DATE	DELIVERY MODE
09/29/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENNETH L. LEVY

Appeal 2009-010447
Application 10/602,549
Technology Center 2100

Before JOHN A. JEFFERY, CAROLYN D. THOMAS,
and DENISE M. POTHIER, *Administrative Patent Judges*.

POTHIER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-16, 23, 25, 27-30, 33,[1] and 35-40. Claims 17-22, 24, 26, 31, 32, and 34 have been canceled. App. Br. 3. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part. We also enter a new ground of rejection for claim 33 pursuant to 37 C.F.R. § 41.50(b).

---

[1] Appellant refers to claim 22 as both pending and canceled. *See* App. Br. 3. We presume that the reference to claim 22 as being pending and finally rejected was a typographical error and assume that Appellant intended to refer to claim 33 for purposes of this decision.

STATEMENT OF THE CASE

Appellant's invention relates to a technique of steganographically hiding identification data embedded in a video so that the embedded data is visually imperceptible during real-time viewing. *See generally* Spec. ¶ 0012. Claim 40 is reproduced below with the key disputed limitations emphasized:

> 40. A detecting method comprising:
> obtaining content, the content including auxiliary data embedded therein, the embedding being accomplished through modifications of portions of the content, the modifications occurring prior to obtaining the content, the modifications being humanly perceptible if examined in a finite segment or frame of the content, but provided in the content so as to be humanly imperceptible when examined as the content is rendered or projected in real-time;
> *averaging a plurality of content portions*; and
> detecting the auxiliary data from data representing averaged content portions, the auxiliary data being relatively more detectable from the data representing averaged content portions compared to individual portions including the auxiliary data.

The Examiner relies on the following as evidence of unpatentability:

Schumann	US 6,950,532 B1	Sept. 27, 2005 (filed Apr. 24, 2001)

THE REJECTION

The Examiner rejected claims 1-16, 23, 25, 27-30, 33, and 35-40 under 35 U.S.C. § 102(e) as anticipated by Schumann. Ans. 2-9.[2]

[2] Throughout this opinion, we refer to (1) the Appeal Brief filed August 6, 2008; (2) the Examiner's Answer mailed February 20, 2009; and (3) the Reply Brief filed April 16, 2009.

Claim 40

THE CONTENTIONS

Regarding independent claim 40, the Examiner finds that Schumann discloses averaging content portions by inserting spacing marks into generated images. Ans. 8, 10. In particular, the Examiner states that Schumann's mark spacing also discloses averaging content portions because the marks, on average, coincide with the shutter or optical sensor timing of a video recording device. *See id.*

Appellant provides a customary definition for "average," and argues that Schumann fails to disclose averaging content portions based on this conventional meaning. App. Br. 7-9; Reply Br. 3.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 40 by finding that Schumann discloses averaging content portions?

FINDINGS OF FACT (FF)

1. Appellant discusses a detection technique that involves averaging many frames in a video sequence so that unchanging identification data will accumulate while other frame content will cancel each other out during averaging. *See* Spec. ¶¶ 0046-47.

2. Schumann discloses a disruption effect that includes inserting spaced marks into a generated image and the marks are spaced to coincide with the spacing of the image elements on the image sensing devices' optical sensors. Schumann, col. 6, ll. 17-21.

ANALYSIS

We begin by construing the key disputed limitation of claim 40 which calls for, in pertinent part, averaging content portions or, more specifically, the term "average" within this phrase. While Appellant's disclosure does not define "average," Appellant discusses a technique that involves averaging many frames so that certain identification data accumulates while other content cancels each other out during the process. *See* FF 1. This implies averaging is used to represent data that repeats within many frames. Also, "words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.,* 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). Appellant has provided a customary meaning of the term, "average," to include a single value, such as mean that represents a set of values. *See* App. Br. 8. Thus, we find that the broadest reasonable construction of the term, "averaging," in light of the disclosure and how an ordinary skilled artisan would understand this term, includes the act of accumulating and cancelling content portions to arrive at a value representing the content portions. *See In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (internal citations omitted).

Schumann discloses a disruption effect that includes inserting spaced marks into a generated image and the marks are spaced to coincide with the spacing of the image elements on the image sensing devices' optical sensors. FF 2. The Examiner relies on this description to disclose averaging the content portions, and states that *on average* the marks will be spaced to coincide with the image elements on an image sensing device's sensors. *See* Ans. 10. We find the Examiner's interpretation does match the reasonably broad construction of averaging content portions. First, the phrase, "on

average," is noticeably absent from Schumann. *See* FF 2. Second, Schumann does not disclose accumulating these marks (e.g., content portions) to arrive at a value that represents the content portions. *See id.* We therefore find that Schumann does not disclose averaging content portions given its broadest reasonable construction.

For the foregoing reasons, Appellant has persuaded us of error in the anticipation rejection of independent claim 40.

Claims 1, 4, 6, 7, 9, 11, 14, and 15

Regarding representative independent claim 1, the Examiner finds that Schumann discloses carrying identification data (e.g., writing effects, security information, and disruptive content) in the first and second frames prior to distribution or projection. Ans. 2-3, 13. Additionally, the Examiner explains that this content can be imperceptible to a viewer by spacing the marks into the generated image and also points to the discussion of Figure 20 (i.e., column 16) to demonstrate this imperceptibility. *See* Ans. 13.

Appellant contends that Schumann does not embed identification data in the first and second frames prior to distribution or projection so as to be generally imperceptible upon real-time rendering of a video. App. Br. 12-13; Reply Br. 5-6. Appellant argues that the disruption directives and control information in Schumann control the introduction of anomalies in the film and are not the projected anomalies themselves that are visually perceptible upon examination but generally imperceptible upon real-time rendering. App. Br. 12-13. Appellant also asserts that the projected anomalies are projected onto the video screen during projection and not contained in the projected frame or video itself. App. Br. 13.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 1 by finding that Schumann discloses embedding identification data in a first and second video frame, wherein the identification data is visually perceptible upon examination of the second frame but generally imperceptible when rendered in real-time?

ADDITIONAL FINDINGS OF FACT (FF)

3. Schumann discloses that the content may include identifying information or watermarks. Schumann, col. 6, ll. 61-63.

4. Schumann discloses disruption patterns may include a visible message, such as "COPY," using the techniques disclosed in Schumann. *See* Schumann, col. 7, ll. 30-34.

5. Schumann discloses an example of disruption text on an image that is inserted in the frames per a pattern designed to cause a disruptive effect. A sequence of disruption frames 2000 may have character disruption text inserted in frames per a pattern, including the text "COPY" 2010[3] in the same location in the frame. The "C" and "P" in the text have a dark background. The "O" and "Y" in the text have a white background. Projecting the frames, a first resultant image 2030 is what the image recording device (IRD) might detect, which includes the text, "COPY"; a second resultant image 2040 is what a person might see, which does not include the text, "COPY." Schumann, col. 16, ll. 8-15; Fig. 20.

[3] Reference number 2010 is not described in Schumann but shown in Figure 20.

6. Schumann discloses this invention is intended to create effects that may be invisible to humans. The disruptive techniques are invisible to the human eye but visible to an IRD. Schumann, col. 5, ll. 11-23

7. Schumann states that images may be generated at reduced intensity so that the human eye may not detect them. Schumann, col. 6, ll. 31-33.

8. Appellant states that information or data within a window of a video frame that identifies the video is visually perceptible when viewing an individual frame. Spec. ¶ 0026; Fig. 1.

ANALYSIS

Based on the record before us, we find no error in the Examiner's anticipation rejection of representative claim 1 which calls for, in pertinent part, embedding the identification data in the first and second frame so that the identification data is visually perceptible upon examination of the second frame, but generally imperceptible when rendered in real time. Notably, claim 1 recites embedding identification data into a first and second frame prior to projection, but does not require that the video frame be the same frames that contain the film or the film's content. Even so, Schumann discloses that the content may include identifying information, such as watermarks. FF 3. Because watermarks involve marking the content or the frames themselves, Schumann discloses a technique that embeds watermarks or identification data in the content's frames themselves. *See id.* Thus, despite Appellant's argument that the projected anomalies are introduced only during projection (*see* App. Br. 13), Schumann discloses that content or frames are embedded with identification data prior to projection as recited.

Additionally, Schumann discloses the disruption pattern may include a visible message, such as "COPY," using the techniques disclosed in Schumann. *See* FF 4. One such technique is watermarking. *See* FF 33. Schumann discloses another technique involving disruption text on an image that is inserted *in* the frames per a pattern designed to cause a disruptive effect. FF 5. This insertion occurs prior to the projection. *See id.* Thus, Schumann discloses yet another method of embedded identification data (e.g., "COPY") in a first and second frame prior to projection of the video as recited. Schumann further demonstrates that the resultant image in real time (e.g., 2040) of what the person may see using these disruption techniques. FF 5. The image (e.g., 2040) does not include the disruption text (*see id.*) and, thus, is generally imperceptible upon real-time rendering of the video as recited. Moreover, Schumann discloses this invention is intended to create effects that may be invisible to humans (*see* FF 6) or are generated so that the human eye may not detect them (*see* FF 7).

Also, consistent with Appellant's description (*see* FF 8), these watermarked or disruption-patterned frames when viewed on a frame-by-frame basis would be visually perceptible upon examination. Thus, Schumann discloses embedding identification data in frames such that the data is visually perceptible upon examination of a frame and generally imperceptible upon real-time rendering of the video as recited in claim 1.

For the foregoing reasons, Appellant has not persuaded us of error in the anticipation rejection of: independent claim 1 and claims 4, 6, 7, 9, 11, 14, and 15 not separately argued with particularity (App. Br. 11-13).

Claims 2 and 8

Regarding claims 2 and 8, the Examiner finds that Schumann's discussion of spaced marks into the generated image and reduced intensity disclose selecting the second frame so that the repetition of embedded data is imperceptible to both the human conscious and unconscious mind when rendered. Ans. 3-4, 13-14.

For both claims 2 and 8, Appellant argues that this portion of Schumann does not disclose repeating an embedded identification data so that the data is imperceptible to the human conscious or unconscious mind when rendered. App. Br. 14-15; Reply Br. 6. Particularly, Appellant contends that reducing the intensity of an image is not repeating the embedded identification data. *See id.*

ISSUES

Under § 102, has the Examiner erred by finding that Schumann discloses:

(a) repeating an embedded identification data so that the data is imperceptible to the human conscious mind when rendered in rejecting claim 2?

(b) repeating an embedded identification data so that the data is imperceptible to the human unconscious mind in rejecting claim 8?

ANALYSIS

As we noted above regarding claim 1, we disagree with Appellant that Schumann does not disclose repeating an embedded identification data so that the data is imperceptible to the human conscious mind when rendered as

recited in claim 2. That is, Schumann discloses an embodiment where the frames and, thus, the second frame is selected so that the repetition of the identification data (e.g., "COPY") is imperceptible to the human conscious mind when rendered (e.g., resultant image 2040). *See* FF 5. Additionally, Schumann discloses the objective of the invention is to create effects that may be invisible to the human when viewing the content, but are viewable after recorded. FF 6. Thus, Schumann discloses repeating embedded identification data such that the data is imperceptible to the human conscious mind as recited.

Claim 8 depends from claim 2. We refer to our above discussion. That is, if data is imperceptible to a conscious mind, the data will be equally imperceptible to an unconscious[4] human mind (e.g., a person that is asleep).

We therefore will sustain the rejection of claims 2 and 8.

Claims 3 and 10

Regarding representative claim 3, the Examiner finds that Schumann discloses the embedded identification data in the same frame location for the first and second frame. Ans. 3, 15. Appellant argues that the cited portion by the Examiner does not discuss embedded identification data in the same frame location of the first and second frames. App. Br. 15-16.

[4] Appellant describes in the Specification repeating windows in a video sequence so that the information data is obscured from human sub-conscious detection. *See* Spec. ¶ 0044. However, claim 8 does not recite this sub-conscious limitation.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 3 by finding that Schumann discloses the embedded identification data in the same frame location for the first and second frame?

ANALYSIS

Based on the record before us, we find no error in the Examiner's anticipation rejection of representative claim 3 which calls for, in pertinent part, the embedded identification data in the same frame location for the first and second frame. We once again refer to our discussion of claim 1. Schumann discloses an embodiment (e.g., Figure 20) where the frames and, thus, the second frame have identification data (e.g., COPY) in the same frame location for each frame (*see* frames 2000). *See* FF 5. Thus, Schumann discloses the embedded identification data in the same frame location for the first and second frame as recited. For the foregoing reasons, Appellant has not persuaded us of error in the anticipation rejection of claim 3 and claim 10 not separately argued with particularity (App. Br. 7-22).

Claim 5

Regarding claim 5, the Examiner finds that Schumann discloses providing device-aided character recognition of the first or second frames to detect the identification data by providing an IRD that records the identification data. Ans. 5, 16. Appellant argues that the cited portion by the Examiner discusses text, but not a device that recognizes the text. App. Br. 17; Reply Br. 6. Appellant also contends an IRD does not have

device-aided character recognition capabilities, such as OCR. *See* App. Br. 18.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 5 by finding that Schumann discloses providing a device-aided character recognition of the first or second frames to detect the identification data?

ANALYSIS

Based on the record before us, we find no error in the Examiner's anticipation rejection of representative claim 5 which calls for, in pertinent part, providing device-aided character recognition of the first or second frames to detect the identification data. We disagree with Appellant that the IRD cannot provide "device-aided character recognition" of the frames to detect the identification data. Schumann provides an example of what the IRD might record or resultant image 2030. FF 5. Image 2030 includes the identification data or text, "COPY," and, thus, the IRD detects the identification data by recording the data. *See id.* By detecting this text, this IRD assists in recognizing the characters that make up the text, "COPY," in each frame. Thus, as broadly as recited, this IRD aids in recognizing or detecting characters in the first and second frame or provides device-aided character recognition of the first or second frames to detect identification data. We will therefore sustain in the anticipation rejection of claim 5.

Claims 12 and 13

Representative claim 12 depends from claim 11 and recites the identification data are identifiers embedded to be spatially located in a separate frame location with respect to each other. The Examiner finds that Schumann discloses this recitation. Ans. 5, 17. Appellant argues that the cited portion by the Examiner fails to discuss identifiers embedded spatially at separate frame locations with respect to each other. App. Br. 18-19; Reply Br. 7.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 12 by finding that Schumann discloses identification data comprises identifiers embedded to be spatially located in a separate frame location with respect to each other?

ANALYSIS

Based on the record before us, we find no error in the Examiner's anticipation rejection of representative claim 12 which calls for, in pertinent part, identification data are identifiers embedded to be spatially located in separate frame location with respect to each other. Schumann discloses that the frames include text or the word, "COPY." *See* FF 5. Moreover, this text has varying backgrounds for each letter. *See id.* That is, the "C" and "P" have a dark background, while "O" and "Y" have a white background. *See id.* Thus, each of these letters is an identifier, and the identification data comprises identifiers (e.g., "C," "O," "P," and "Y" with associated backgrounds). *See id.* Moreover, each of these identifiers is embedded into

the frame and spatially located in separate frame locations with respect to each other. *See id.* Schumann therefore discloses that the identification data are identifiers embedded to be spatially located in a separate frame location with respect to each other as recited in claim 12.

For the foregoing reasons, Appellant has not persuaded us of error in the anticipation rejection of claim 12 and claim 13 not separately argued with particularity (App. Br. 7-22).

Claim 16

Claim 16 recites a detection method for the video embedded according to claim 1 and further recites averaging video frames including the first and second video frames recited in claim 1. This averaging step is commensurate in scope with the averaging step in claim 40. For the reasons discussed in connection with claim 40, Appellant has persuaded us of error in the anticipation rejection of independent claim 16, and we refer to our previous discussion.

Claims 23 and 25

Representative independent claim 23 recites a method of marking content with auxiliary data, the data is embedded in the content prior to distribution or projection so as to be humanly perceptible if examined in finite segments but humanly imperceptible when examined in real time.

Citing to various passages in columns six through eight and sixteen, the Examiner finds that Schumann discloses these recitations. Ans. 5, 17-18.

Appellant repeats the arguments made for claim 1 that the disruptive content is not included in the projected content. App. Br. 19-20. The issues

are, thus, similar to that in connection with claim 1, and we refer to our above discussion in connection with claim 1. Specifically, we disagree that all disruptive content in Schumann is only projected and not embedded within the frames of content. Notably, claim 23 does not limit what type of content the auxiliary data is embedded within, but just recites "content."

Appellant also asserts that a quoted passage from Schumann fails to disclose both the embedded auxiliary content is humanly perceptible if examined in a finite segment or frame, but humanly imperceptible when examined and rendered in real time. *See* App. Br. 19-20. Rather, Appellant concludes that Schumann teaches away from having both features. *See* App. Br. 20. Not only are teaching away arguments irrelevant to anticipation,[5] we also disagree for the reasons discussed above in connection with claim 1.

For the foregoing reasons, Appellant has not persuaded us of error in the anticipation rejection of claim 23 and claim 25 not separately argued with particularity (App. Br. 7-22).

Claims 27-30 and 35-39

Regarding representative independent claims 27 and 37, the Examiner finds Schumann discloses the limitations in these claims. Ans. 6, 8. Appellant refers back to the arguments presented for claim 23. App. Br. 21-22. We refer to our previous discussion of claim 23 in sustaining these claims. For the foregoing reasons, Appellant has not persuaded us of error in the anticipation rejection of independent claims 27 and 37 and claims 28-

[5] *Leggett & Platt, Inc. v. VUTEk, Inc.*, 537 F.3d 1349, 1356 (Fed. Cir. 2008) (citation omitted).

30, 35, 36, 38, and 39 not separately argued with particularity (App. Br. 7-22).

Claim 33

Claim 33 recites a detector to detect the data according to claim 28, wherein the detector averages video frames so that the provided data becomes consciously perceptible. Claim 28, which depends from claim 27, recites a method of steganographically hiding data in media content. The limitation of the detector that averages video frames is commensurate in scope with an averaging limitation in claim 40. For the reasons discussed in connection with claim 40, Appellant has persuaded us of error in the anticipation rejection of independent claim 33, and we refer to our previous discussion.

New Ground of Rejection Under 37 C.F.R. § 41.50(b)

Under 37 C.F.R. § 41.50(b), we enter a new ground of rejection under 35 U.S.C. § 112, second paragraph for claim 33 as being indefinite.

Claim 33 recites, in its entirety, "[a] detector to detect the data provided according to claim 28, wherein the detector averages a plurality of the video frames so that the provided data becomes consciously perceptible." Claim 28 is a method claim and depends from claim 27, which is also a method claim. Thus, claim 33 recites a detector in its preamble that detects provided data according to various method steps reciting in claim 28 and also recites a method step of averaging video frames so that the data becomes consciously perceptible. In essence, claim 33 is a hybrid claim to both an apparatus (i.e., a detector) and a method of using the apparatus (e.g.,

to average frames). However, reciting both an apparatus and the method of using the apparatus renders a claim indefinite under § 112, second paragraph. *See Rembrandt Data Tech., L.P. v. AOL, LLC*, 641 F.3d 1331, 1339 (Fed. Cir. 2011).

Also, even if claim 33 is viewed as an apparatus claim, then the claim recites only intended use and functional limitations. Claim 33 recites a detector in its preamble with no corresponding structure in the body of claim to detect the data or to average the frames as recited. Appellant maps claim 33 to Paragraphs 0041 and 0046-48. *See* App. Br. 4. Paragraph 0041 discusses averaging techniques but does not describe any structure to perform this function. *See* Spec. ¶ 0041. Similarly, Paragraphs 0046-48 describes only a detector but no more structure for detecting data and averaging the frames. *See* Spec. ¶¶ 0046-48. Figures 1-4 also do not show any components that perform the functions of detecting data or averaging the frames. *See* Spec. Figs. 1-4. Thus, there is an inadequate disclosure of what structure performs the functions in claim 33, and an ordinary skilled artisan would not be able to determine the boundaries or the scope of claim 33.

We therefore find that claim 33 is indefinite under 35 U.S.C. § 112, second paragraph.

CONCLUSION

Under § 102, the Examiner (1) did not err in rejecting claims 1-15, 23, 25, 27-30, and 35-39, (2) but erred in rejecting claims 16, 33, and 40.

DECISION

The Examiner's decision rejecting claims 1-16, 23, 25, 27-30, 33, and 35-40 is affirmed-in-part.

We have also entered a new ground of rejection under 37 C.F.R. § 41.50(b) for claim 33.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides that "[a] new ground of rejection . . . shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
>
> (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART
37 C.F.R. § 41.50(b)

ELD